LIST OF CONTENTS

NUMBER 1

J. L. Meek and **Hua Liu**	1	Nonlinear dynamics analysis of flexible beams under large overall motions and the flexible manipulator simulation
H. Du and **S. F. Ling**	15	A nonlinear dynamics model for three-dimensional flexible linkages
D. Zheng and **T. Y. P. Chang**	25	Parallel Cholesky method on MIMD with shared memory
Chai Gin Boay	39	Frequency analysis of rectangular isotropic plates carrying a concentrated mass
Zhang Hong-Wu	49	Dynamic finite element analysis for interaction between a structure and two-phase saturated soil foundation
Y. W. Li, I. Elishakoff, J. H. Starnes, Jr and **M. Shinozuka**	59	Nonlinear buckling of a structure with random imperfection and random axial compression by a conditional simulation technique
Y. W. Li, I. Elishakoff and **J. H. Starnes, Jr**	65	Axial buckling of composite cylindrical shells with periodic thickness variation
M. A. Bradford and **M. Azhari**	75	Buckling of plates with different end conditions using the finite strip method
M. Gürgöze, K. Özgür and **H. Erol**	85	On the eigenfrequencies of a cantilevered beam with a tip mass and in-span support
Ine-Wei Liu, Tienfuan Kerh and **Chien-Chang Lin**	93	A conforming quadrilateral plate bending element with shear deformations
M. R. Lajczok	101	Effective propellant modulus approach for solid rocket motor ignition structural analysis
Ki-Ook Kim	105	Hybrid dynamic condensation for eigenproblems
Jiahao Lin, Weiping Shen and **F. W. Williams**	113	A high precision direct integration scheme for structures subjected to transient dynamic loading
H. Sucuoğlu	121	Inelastic seismic response of precast concrete frames with constructed plastic hinges
M. Aydoğan, B. Kimençe and **M. E. Ergüven**	133	Container structures on a Vlasov foundation with variable soil characteristics
C. Q. Liu, X. B. Liu and **C. C. Chang**	141	On sensitivity analysis of discrete structural systems
K. Jawahar Reddy and **K. Vijayakumar**	147	Lamination-dependent shear deformation models for bending of angle-ply laminated plates

J. P. Papangelis and **G. J. Hancock** 157 Computer analysis of thin-walled structural members

H. H. Vaziri 177 Theory and application of an efficient computer program for analysis of flexible earth-retaining structures

Technical Note

F. Venancio-Filho and **A. M. Claret** 189 Frequency domain dynamic analysis of MDOF systems: nodal and modal coordinates formulations

I Software Survey Section

NUMBER 2/3

SPECIAL ISSUE: NONLINEAR FINITE ELEMENT ANALYSIS AND ADINA

K. J. Bathe: Preface v
K. J. Bathe, H. Zhang and M. H. Wang: Finite element analysis of incompressible and compressible fluid flows with free surfaces and structural interactions 193
P. Reimers, I. Scheider and A. Schneider: CFD analysis of conjugate heat transfer in a washer–drier heating channel 215
K. J. Bathe, C. Nitikitpaiboon and X. Wang: A mixed displacement-based finite element formulation for acoustic fluid–structure interaction 225
G. Duijvestijn, K. Reichlin and R. Rösel: Computation of flows in experimental simulations of reactor core melting 239
G. Gabriel and K. J. Bathe: Some computational issues in large strain elasto-plastic analysis 249
E. Bøyum: Analyses of top connectors for a TLP using ADINA 269
F. Ellyin, Z. Xia and J. Wu: A new elasto-plastic constitutive model inserted into the user-supplied material model of ADINA 283
J. R. Zuiker: Analysis of a pin-loaded viscoplastic plate 295
L. G. Jansson: Nonlinear analysis of a guide and its stitch welds for repeated loading 303
M. Mahdi and Liangchi Zhang: The finite element thermal analysis of grinding processes by ADINA 313
K. Schiffner: Overlay models for structural analysis under cyclic loading 321
N. P. Kripakov, M. C. Sun and D. A. Donato: ADINA applied toward simulation of progressive failure in underground mine structures 329
W. Szyszkowski and J. King: Stress concentrations due to thermal loads in composite materials 345
T. H. Fronk, K. C. Womack, K. D. Ellis and L. W. Finlinson: Finite element modeling of damping in constrained layer composite structures induced by inplane loads using ADINA 357
M. Tissakht, H. Eskandari and A. M. Ahmed: Micromotion analysis of the fixation of total knee tibial component 365
J. A. Sherwood, J. M. Ayres, T. S. Gross and D. Watt: An investigation of tire–wheel interface loads using ADINA 377
A. V. Krimotat and R. M. Mutobe: Seismic analysis of complex structures: practical application issues and case study 389
H. Ho: A finite element analysis of the impact–contact problem of a portable telephone using I-DEAS and ADINA 397
A. D. Gupta, J. M. Santiago and C. Meyer: Comparison of computational and experimental modal analyses of an armored vehicle hull with multiple access openings 411

R. Stuart, L. Shipley, A. Ghose and M. Hiremath: Dynamic analysis of high-level waste storage tanks 415
H. Grebner and A. Höfler: Investigation of stratification effects on the surge line of a pressurized water reactor 425
E. G. Thimmhardy, C. Marsh, H. Chen and M. Tessema: Nonlinear analysis of steel and concrete bridge components 439
J. W. Tedesco, J. M. Stallings and D. R. Tow: Finite element method analysis of bridge girder–diaphragm interaction 461
Y. Chen: Dynamic analysis and response of large reinforced concrete conduits in inhomogeneous soil strata 475
D. Khatri and J. C. Anderson: Analysis of reinforced concrete shear wall components using the ADINA nonlinear concrete model 485
J. A. Sherwood and H. M. Quimby: Micromechanical modeling of damage growth in titanium based metal–matrix composites 505
W. D. Rolph III: Requirements for finite element model generation from CAD data—an approach using numerical conformal mapping 515

NUMBER 4

M. M. Segura and **J. T. Celigüeta** 523 A new dynamic reanalysis technique based on modal synthesis

C. K. Yew, J. T. Boyle and **D. MacKenzie** 529 Closed form integration of element stiffness matrices using a computer algebra system

Y. Xiang, C. M. Wang and **S. Kitipornchai** 541 FORTRAN subroutines for mathematical operations on polynomial functions

K. M. Abdalla and **Wai-Fah Chen** 553 Expanded database of semi-rigid steel connections

A. El-Zafrany, S. Fadhil and **M. Debbih** 565 An efficient approach for boundary element bending analysis of thin and thick plates

A. Y. T. Leung and **W. E. Zhou** 577 Dynamic stiffness analysis of axially loaded non-uniform Timoshenko columns

T. Mizusawa and **H. Kito** 589 Vibration of antisymmetric angle-ply laminated cylindrical panels by the spline strip method

H. I. van der Veen and **K. Vuik** 605 Bi-Lanczos with partial orthogonalization

P. Vijayan, Y. Singh and **A. K. Nagpal** 615 A reduction procedure for load distribution in asymmetric tall buildings

C. B. York and **F. W. Williams** 625 Buckling analysis of skew plate assemblies: classical plate theory results incorporating Lagrangian multipliers

Kyu Jong Lee 637 The non-linear analysis of tapered bonded joints

Jin-Woo Cho and **Sung-Kie Youn** 645 A hierarchical time adaptive refinement scheme for the finite element elastodynamics

Sung-Kie Youn and **Sang-Hoon Park** 651 A new direct higher-order Taylor–Galerkin finite element method

B. R. Sriram and **T. S. Mruthyunjaya** 657 Synthesis of path generating flexible-link mechanisms

S. Oral 667 A hybrid-stress finite element for nonuniform filament-wound composite box-beams

H. A. El-Ghazaly 673 Elasto-plastic rotational capacity of welded symmetrical moment connections

Wei Qin Shen 687 Limit analyses of plane frames with a penalty linear programming method

F. S. Jin and **Q. H. Qin** 697 A variational principle and hybrid Trefftz finite element for the analysis of Reissner plates

Technical Note

A. P. Beena and **B. Nageswara Rao** 703 Structural behaviour of misaligned segments in a pressure vessel

I Software Survey Section

NUMBER 5

SPECIAL ISSUE: BOUNDARY ELEMENT METHOD

Guest Editor's note 711

A. Tafreshi and R. T. Fenner: General-purpose computer program for shape optimization of engineering structures using the boundary element method 713

R. K. Goldberg and D. A. Hopkins: Application of the boundary element method to the micromechanical analysis of composite materials 721

A. Huesmann and G. Kuhn: Automatic load incrementation technique for plane elasto-plastic frictional contact problems using boundary element method 733

S. Šimunović and S. Saigal: Contact surface optimization using boundary element method 745

H. B. Coda and W. S. Venturini: Three-dimensional transient BEM analysis 751

F. Shi, P. Ramesh and S. Mukherjee: Simulation methods for micro-electro-mechanical structures (MEMS) with application to a microtweezer 769

A. Chandra, K. X. Hu and Y. Huang: A hybrid BEM formulation for multiple cracks in orthotropic elastic components 785

M. Bonnet: Regularized BIE formulations for first- and second-order shape sensitivity of elastic fields 799

Fang Zhao and Xiaogang Zeng: An energy based macro-element method via a coupled finite element and boundary integral formulation 813

T. J. Martin, J. D. Halderman and G. S. Dulikravich: An inverse method for finding unknown surface tractions and deformations in elastostatics 825

A. Ali, C. Rajakumar and S. M. Yunus: Advances in acoustic eigenvalue analysis using boundary element method 837

F. T. Kokkinos and J. N. Reddy: BEM and penalty FEM models for viscous incompressible fluids 849

O. E. Lafe and A. H.-D. Cheng: A global interpolation function based boundary element method for deterministic, non-homogeneous, and stochastic flows in porous media 861

Software Survey Section I

NUMBER 6

I. Elishakoff	871	Essay on uncertainties in elastic and viscoelastic structures: from A. M. Freudenthal's criticisms to modern convex modeling
Aijun Ma, Suhuan Chen and **Zhongsheng Liu**	897	Statistical properties of nonlinear mode spectrum for large amplitude forced vibration systems
H. A. Jensen	903	A global sensitivity analysis in structural mechanics
P. Srinivasa Rao, K. V. Rambabu and **M. M. Allam**	917	Representation of soil support in analysis of open plane frames
R. M. Brasil and **M. A. Hawwa**	927	The localization of buckling modes in nearly periodic trusses
P. W. Khong and **J. H. Ong**	933	Post buckling of a plate with elastic restraints at two unloaded edges
J. Avrashi and **O. Dancygier**	939	Refined three-dimensional finite strip model for analysis of thick composite sandwich plates
F. H. Hamdan and **P. J. Dowling**	949	Far-field fluid–structure interaction—formulation and validation
J. D. Renton	959	Automated derivation of structural formulae
Kaishin Liu	969	Numerical simulation of torsional wave propagation in an elastic–viscoplastic stepped bar
Dipankar Chakravorty, J. N. Bandyopadhyay and **P. K. Sinha**	975	Finite element free vibration analysis of conoidal shells
Shyue-Jian Wu and **Pei-Tse Chow**	979	Steady-state genetic algorithms for discrete optimization of trusses
T. P. Holopainen	993	Finite element free vibration analysis of eccentrically stiffened plates
L. A. Godoy, E. J. Barbero and **I. G. Raftoyiannis**	1009	Finite elements for post-buckling analysis. I—The *W*-formulation
E. J. Barbero, I. G. Raftoyiannis and **L. A. Godoy**	1019	Finite elements for post-buckling analysis. II—Application to composite plate assemblies
B. R. Sriram and **T. S. Mruthyunjaya**	1029	Dynamics of flexible-link mechanisms
S. M. Wilkinson and **D. P. Thambiratnam**	1039	Mode coupling in the vibration response of asymmetric buildings

Jaehong Lee, O. H. Griffin, Jr and **Z. Gürdal** 1053 Buckling and postbuckling of circular plates containing concentric penny-shaped delaminations

S. A. Al-Taan and **N. A. Ezzadeen** 1065 Flexural analysis of reinforced fibrous concrete members using the finite element method

Technical Note

Chun Q. Li 1073 Computation of the failure probability of deteriorating structural systems

I Software Survey Section

i List of Contents and Author Index for Volume 56, 1995